

**Elmendorf AFB, Anchorage, AK**  
**Showcasing 21st Century Environmental Practices at Elmendorf Air Force Base, Alaska**

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Elmendorf AFB has transformed itself into an environmental showcase by implementing numerous fully sustainable projects and techniques that have long-term benefits to the environment, people, and the economy.

Key highlights of this transformation include:

- Urban renewal. Constructed 1,194 new 4-star energy rated houses equipped with Energy Star appliances;
- Closed 1950s-era power plant and converted to public power grid (generated with clean-burning natural gas)
  - 36% yearly energy savings (\$123 million in savings over 22-year performance period)
  - Reduced NOx emissions by 1,550 tons/year; the remaining NOx from all other sources on base is just 517 tons/year!
- Closed energy intensive centralized steam heating plant, eliminating 80,000 gallons/day of steam condensate discharge leaking from 58-mile pipe network; base buildings now heated with 300 energy efficient natural gas fired boilers;
- New F-22 aircraft weapon system is much more environmentally friendly than previous F-15 aircraft
  - F-22 uses far less solvents/toxic materials and has far greater range than F-15 per gallon of fuel
- Leading change in Alaska for alternative-fueled vehicles
  - Built \$500K Compressed Natural Gas (CNG) fuel station
  - Converted 77 base fleet vehicles to burn CNG; new fleet vehicles are purchased with CNG use capability
- Elmendorf received Anchorage Green Star Award for waste reduction, energy conservation and pollution prevention;
- Funded \$264K for two-year 5kW fuel cell pilot project to supply heat and power to base fire department
  - Purpose of project is to demonstrate feasibility of using energy efficient fuel cells in Arctic environments;
- Reduced Cold War era building energy consumption. Installed high-efficiency roofs, saving \$200K/year in energy (heating) costs;
- Purchased aqueous-based painting truck for road/runway striping; saves 6 tons/year in VOC emissions;
- In FY04/05, diverted for reuse and recycling 90% of base solid wastes (222 tons), saved \$10M in landfill fees;
- Partnered with State and University of Alaska to research/implement new evapotranspiration (ET) landfill cap
  - ET technology uses natural flora rather than typically used rigid clay landfill cap
  - As part of the ET effort, over 250,000 trees planted to restore 70 acres at old base solid waste landfill
  - Elmendorf ET technology can be used throughout the state to cap abandoned landfills
  - ET is much easier to maintain than rigid cap and Elmendorf projects a \$5M maintenance lifetime savings;
- Elevated Elmendorf to international environmental standards (ISO14001) by implementing a certified Environmental Management System (EMS) designed to reduce our environmental impacts and increase operating efficiency
  - EMS ethic: 6,500 personnel received EMS training on how to meet or exceed new environmental conditions and requirements, reporting environmental performance, and reinforcing continual improvement.

At Elmendorf, there are few remaining pollution prevention “low hanging fruits” or quick fixes to substantially improve our environmental performance. Achieving our measurable successes comes through sustained leadership to champion changes coupled with a robust EMS program that is results-oriented and performance-based. With the fully sustainable projects and techniques we have implemented, Elmendorf is well positioned to meet the changing environmental demands of the 21st century.